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SYNOPSIS OF THE NORTH AMERICAN SPECIES OF XYLARIA AND PORONIA.

BY J. B. ELLIS AND B. M. EVERHART.

XYLARIA, Hill. Hist. Plant (1773), pp. 62 and 63.

Stroma erect, round, clavate or subglobose, mostly stipitate, suberose or coriaceous; perithecia adnate or immersed in the stroma, coriaceo-carbonaceous; asci subcylindrical; sporidia ovoid or subnavicular, continuous, dark.

A. XYLOGLOSSA. Capitulum everywhere fertile, stem smooth.

a. Capitulum clavate, stem slender, elongated.

1. XYLARIA EUGLOSSA, Fr. Nov. Symb., p. 124.

Stroma clavate, thickened above, obtuse, smooth, clay colored; black-punctate by the minute ostiola, within whitish-cinereous, becoming darker towards the surface; perithecia entirely immersed, globose, black, stipe slender, elongated, glabrous, turning black. Found in Costa Rica by Oersted.

This species resembles *Geoglossum difforme*, but is larger, 3—4 inches high and, in the dry state, at least, is longitudinally rugose, often arcuate-incurved or twisted and almost as hard as stone; stipe over an inch long, but scarcely exceeding a line in thickness. equal, glabrous, longitudinally rugose when dry. The club in form and color resembles *Clavaria ligula*, but is paler, properly black, but appearing as if smeared over with alutaceous-clay color, obtuse above and distinct from the stipe; asci slender, linear, evanescent; sporidia uniseriate, oblong, acute at each end, continuous, opaque, occasionally curved.

2. XYLARIA PROTEA, Fr. l. c., p. 125.

Stroma suberose-indurated, lanceolate, obtuse, wrinkled, bare, white within, stipe slender, equal, glabrous; perithecia globose, subimmersed, peripheric, depressed-hemispheric, with rather prominent ostiola. On trunks in Costa Rica. Oersted.

Resembles *X. corniformis*, Fr., which, however, differs in its obsolete stipe and villous base, while this, like the preceding species, has the stipe slender, very smooth and varnished and so fragile that there is hardly a

whole one in the collection, about a line thick and, in the dry state, longitudinally cavernose-rugose; club about 1½ inches long and one fourth of an inch thick, obtuse, bare, opaque, black and at the first glance appearing rimose-corrugated, but in reality the surface is densely colliculose by reason of the slightly prominent perithecia, with depressed papilliform ostiola. The perithecia are rather large, exactly globose, peripheric, not very regularly arranged and have a dark-colored nucleus. The asci and sporidia are almost the same as in the preceding species.

3. XYLARIA RHOPALOIDES (Kunze) Mont. Ann. Sci. Nat., 1885, III, p. 99, and 1840, XIII, Cent. II, No. 27.

We find under these references no detailed description of this species, but in Cooke's figure in Grev., pl. 163, fig. 14, it is represented as subcæspitose, the short stem-like base dividing above into two clavate-cylindrical, ferile branches. Saccardo, in Syll. I, p. 326, says the asci are briefly stipitate, cylindrical, 8-spored, sporidia 8—10 μ long (10 x 5 μ, sec. Cooke, in Grev. XI, p. 82.)

4. XYLARIA MULTIFIDA (Kunze) sec. Lev. Ann. Sci. Nat., 1845, III, p. 45. The following description of this species is copied from Grev. XI, p. 85:

"Stromate conidiifero erecto, furcato-partito, palmatoque, albido; stromate ascigero simplici, atro, erecto, clavato; stipite æquilango, tenui, atro, glabro (?); peritheciis globosis, atris, prominulis; ascis cylindraceis, stipitatis; sporidiis fusiformibus, obtusis, inæquilateralibus, fuscis, (.01—.012 x .004—.005.) On trunks. Java and Central America. In Herb. Paris. Greatly resembles *X. Hypoxylon*, of which it may be a variety."

5. XYLARIA TENTACULATA, Rav. MS. Journ. Linn. Soc. X, p. 381; *X. tentaculata*, B. & Br., Grev. IV, p. 48.

Stipe weak, elongated, slender, glabrous; head short-cylindrical, roughened by the ascending ostiola; apex adorned with flagelliform processes. On decaying wood. June. South Carolina, 1½ inches high. No. 603 is a variety in which the processes have short, patent branchlets resembling somewhat *X. comosa*, but without its velvety skin. (Linn. Journ., l. c.) The characters given in Grevillea are as follows: "Stipe elongato glabro fusco; capitulo brevi cylindrico, processibus tentaculiformibus coronato. In shaded swamps, among mosses and rotten wood. Car. Inf., Ravenel, No. 1,300. Stem one inch high, not a line thick; head cylindrical, 1—2 lines long, ostiola prominent, tending upwards, crowned by several tentacular processes about one half an inch long. Allied to *Xylaria comosa*, Mont."

6. XYLARIA OLOBAPHA, Berk., in Herb. Kew., Grev. XI, p. 84.

"Stroma erect, clavate, rufous, attenuated below into a short, slender, glabrous, equal stipe; perithecia globose, black, ostiola punctiform, flat; asci cylindrical, stipitate; sporidia lanceolate, curved or straight, fuscous, 20—22 x 8½ μ. On trunks, Brazil, Mexico. Whole plant 2—2½ inches high, of which the club occupies half; club 1 cm. thick."

b. Capitulum subclavate; stem thick, abbreviated or obsolete.

7. XYLARIA POLYMORPHA (Pers.) Grev. Flor. Edin., p. 35; Nitschke Pyr. Germ., p. 17; *Sphæria polymorpha*, Pers., Comm., p. 17.

Stromata fasciculate or tufted, 2—6 connate at base, or more rarely solitary, erect, thick, glabrous, dark argillaceous, becoming black, sometimes simple and terete, more or less attenuated at the base and apex, or quite obtuse and subcylindrical, or compressed and obovate, or emarginate, or furcately branched, or sometimes nearly globose, the entire surface—except the very short or nearly obsolete stipe—roughened by the slightly prominent, rather large (½—¾ millim.), ovate, closely-packed perithecia; asci cylindrical, with a very long, stipitate, slender base, 140—180 x 8—10 μ (spore-bearing part 100—120 μ long); sporidia uniseriate, subfusoid or navicular, often more or less curved, subacute at each end or rarely obtuse, pale at first, with 1—2 nuclei, soon opaque, 20—30 x 5—9 μ. Around the base of old stumps, etc. Common throughout the United States and Canada.

8. XYLARIA TITAN, B. & C. Grev. IV, p. 47.

"Gigantea allantoidea dura, extus albida; ostiolis nigris prominentibus. Texas, Lindheimer, No. 2,676. Five inches long, two i ches wide, sausage shaped, convex on one side, hollow on the other, hard, solid, dirty-white, stained with the sporidia and dotted with the prominent ostiola."

9. XYLARIA FULVELLA, B. & C. Linn. Journ., X, p. 380.

"Clavata, rubiginosa, papillata; peritheciis semiprominulis, ostiolis nigris; stipite cylindrico, pallide fulvo lineato-rugoso (590). On dead wood. Alabama (No. 4,902). Sporidia oblong, .0003 inch long, closely allied to an Australian species, *X. phosphoria*, B., but differs in the absence of the white ring around the ostiolum." Found also in Cuba.

c. Capitulum subglobose.

10. XYLARIA CUDONIA, B. & C. Grev. IV, p. 47.

On rotten trunks, Santee Canal, So. Ca. (Ravenel.) Appearing somewhat as if varnished; stipe short (twelve millim. high, four millim. thick) dilated above; head hemispheric, twelve millim. in diameter, papillate, roughened by the slightly prominent perithecia; ostiola very small. Cooke, in Grev. XI, p. 82, states that the sporidia are almond-shaped, 13 x 8 μ.

11. XYLARIA CLAVULUS, B. & C. On decaying culm of some grass in Texas.

"Parva seriata; stipite brevi, crassiusculo penetrante; capitulo convexo." Saccardo, in Syll. I, p. 323, says: "Stroma about 2—3 millim. high, not varnished (laccate) texture rather firm; a beautiful but minute species.

B. XYLOCORYNE. Club everywhere fertile; stem villose.

a. Capitulum clavate; stem elongated, slender.

12. XYLARIA FASTIGIATA, Fr. Nov. Symb., p. 127 (Linn. Trans., 1830, p. 536).

Densely cæspitose-connate, fistulose, black; clubs short, oblong or cylindric, obtuse, papillose-scabrous; perithecia immersed, peripheric, globose, ostiola papilliform. On trunks in Costa Rica. (Oersted.) Stipes densely packed, joined at base and often ramose-concrescent, compressed, angular, often torulose and flexuous, an inch or more long and about a line thick, not truly villose, but covered at first with a dark, oppressed, subleprous coat; club not distinct from the stipe, comparatively small, slightly swollen, scarcely over two lines thick, unequal, bare, fastigiate, black; perithecia in a thin, black, peripheric layer, small, globose, slightly prominent, decurrent on the stipe; sporidia oblong, curved, opaque.

13. XYLARIA MULTIPLEX (Kze.) Fr. On trunks in Mexico. (Hœgberg.)

Cæspitose, suberose, brown-black, clubs terete-compressed, subdivided, smooth, white inside; stipes elongated, leprose-villose; perithecia entirely immersed, globose, crowded; ostiola punctiform, becoming somewhat dilated; sporidia ovoid, 20—22 μ long.

14. XYLARIA GEOGLOSSUM (Schw.) Jour. Acad. Nat. Sci., Phil., Vol. V, tab. 1, fig. 4. Sent by Dr. Torrey from New York. Habitat not noted.

Carnose suberose, simple, very black; club tongue-shaped, compressed, somewhat grooved, falcate, obtuse at the apex; perithecia oblong, black, somewhat prominent; ostiola minute, scarcely prominent; stipe three times longer than the club, subsquamulose, hairy at the base, slender, suberose, black outside, white within. Resembles a *Geoglossum*. Whole plant about one inch high ("pollicem altus.")

15. XYLARIA CORNIFORMIS, Fr. Summ. Veg. Scand., p. 381.

Stroma simple, club-shaped, 1—1½ inches high and about one fourth of an inch thick, obtuse at the apex, light brown at first, finally black; stem short (one fourth of an inch) hairy, attached to the matrix by an enlarged subdiscoid base; perithecia subglobose, only slightly prominent, small; ostiola papilliform, minute; asci cylindrical, on long pedicels, 8-spored, spore-bearing part 60—75 x 6—7 μ; sporidia obliquely uniseriate, somewhat inequilateral or nearly straight, rounded at each end and obtuse, opaque, 8—10 x 5 μ. Common from New York to Florida on decaying limbs and logs. At Newfield, N. J., it is confined almost exclusively to fallen trunks of *Magnolia glauca*. It does not seem to be as abundant and common in the western and Pacific states. *Sphæria flabelliformis*, Schw., is an abortive state of this species, in which the short stem, instead of being surmounted by a fertile club, is divided above in a fimbriate or brush-like manner into many short, acute branches, the whole rising only to the height of about one fourth of an inch, forming a small, light, reddish or flesh-colored tuft filled with abundant, minute conidia.

C. XYLOSTYLA. Apex of the club sterile, stem smooth.

a. Head clavate, simple or crested.

16. XYLARIA GRAMINICOLA, Ger. 26th Rep. N. Y. State Mus., p. 85. "Club slender, cylindrical, simple, at first greenish-pulverulent, then blackish brown, roughened by the prominent, globose perithecia, tips sterile, acuminate; stem smooth, straight or flexuous, brown; spores uniseriate, unequally elliptical, .0004 x .0002 inches. Plant about two inches high, parasitic on the roots of languishing grasses. Allied to *X. Hypoxylon*. Poughkeepsie, N. Y. Gerard.

17. XYLARIA MUCRONATA (Schw.) On trunks of *Liriodendron*. Carolina (Schweinitz.) *Sphæria mucronata*, Schw. Syn. Car., Journ. Acad. Nat. Sci., V, tab. 1, fig. 1.

Carnose, simple, stem liver-color (badius) subsquamulose, inflexed, compressed, one inch high, four lines thick; club thickened, irregular, becoming light yellow, apex mucronate; perithecia rather large and prominent, with globose, black ostiola; sporidia subglobose and black.

b. Capituli connate or branched.

18. XYLARIA DIGITATA (Linn.) Grev. Flor. Ed., 356; Nitschke Pyr., Germ., p. 9; Fr. S. M., II, p. 326. On decaying wood. New York (Peck), Carolina and Pennsylvania (Schweinitz), Texas (Lindheimer).

Stroma erect, thick, dark brown, leproso-velutinous, becoming smooth, round and simple, gradually attenuated at the apex, more rarely obtuse, or emarginate, or divided into 2—3 dichotomously cleft branches, sometimes clavate-columnar, 3—4 cm. high, flattened and dilated above, with the apex subdentate lobed. (The specimens in Rav. Car., V, No. 50, are of this sort.) Asci cylindrical, with a long, slender stipe, 8-spored; sporidia obliquely uniseriate, fusoid, obtuse, inequilateral, dark brown, 18—20 x 5—6 μ. All the American specimens we have seen have the sporidia smaller, 10—12 x 4—5 μ. Prof. Peck, in 30th Rep., p. 76, and 31st Rep., p. 79, has noted this peculiarity and distinguished our short-spored form as var. *Americana*. No form of this species has as yet been noticed around Newfield.

19. XYLARIA GRANDIS, Pk. 26th Rep. N. Y. State Mus., p. 85. On the ground. Portage, N. Y. (Clinton).

"Large, blackish-brown, irregular, obtusely pointed and rusty brown at the sterile tip, abruptly narrowed at the base; central substance white; perithecia subglobose; spores subfusiform, pointed at each end, straight or slightly curved, .0008—.0009 inches long; stem branched, radiating, often greatly elongated; plant 3—5 in. high, heads 1½—3 in. long, ½—1 in. thick. The branching stem and pointed, sterile apices of the clubs separate this from *X. polymorpha*, which it also surpasses in size. The larger spores distinguish it from *X. digitata*."

c. Stroma filiform.

20. XYLARIA FILIFORMIS (A. & S.) On decaying leaves. Carolina (Ravenel), New Jersey (Ellis).

Stroma filiform, 3—5 cm. long and mostly less than one millim. thick at the base, gradually attenuated above, subundulate, white pruinose at first, with the apex inclining to flesh color, but finally smooth, black and

shining; perithecia conic-hemispheric, 200—250 μ in diameter, not crowded, seated on the stroma about midway or a little above the middle and extending along for about one cm.; ostiolum short, conic, acute; asci 75—80 x 7—8 μ (exceptionally 100 μ long), spore-bearing part 65—75 μ long; sporidia mostly biseriate, pale olive brown, fusoid, often a little bulging on one side, 14—18 x 8—3½ μ; paraphyses none. At Newfield, this occurs mostly on fallen leaves of *Magnolia glauca*. The specimens in Rav. Car. and in N. A. F. are sterile, but fertile specimens have now been found and will be again distributed.

D. XYLODACTYLA. Apex sterile, stem villose.

a. Capitulum clavate, simple.

21. XYLARIA TRACHELINA, Lev. (Sphæria, Cordyceps trachelina, Lev., Ann. Sci. Nat., 1860, V 304).

Clubs elongated, rugose, tuberculose, apices acute, sterile, sooty-black, white within, stipes very long, tomentose; perithecia globose, prominent, black within; ostiola obsolete; asci cylindrical; sporidia obtusely lanceolate, dark, 20 x 7 μ; stipe one half an inch high; club one inch long, one eighth to one third of an inch thick. On trunks. New Granada, South America. We have included this species, as it is not improbable that it will be found in the contiguous territory of Central America.

22. XYLARIA PERSICARIA, Schw. Syn. Car., No. 9. On buried peach pits. Carolina (Schweinitz).

Cæspitose, stem flexuous, rarely branching, rooting, three inches long and over, as thick as a crow's quill, at first covered with a greenish, villose coat, at length black; perithecia about midway, very prominent; club white, changing to a flesh-colored or yellowish tint. Where the peach stones from which it grows lie deep in the ground, the stem is sometimes six inches long.

(To be continued.)

NEW KANSAS FUNGI.

BY J. B. ELLIS AND W. A. KELLERMAN.

PHYLLOSTICTA IPOMÆÆ, E & K.—On leaves of *Ipomœa pandurata*. Mound City. Kansas, July, 1887. W. A. Kellerman. Spots amphigenous, rusty brown, suborbicular, 2—4 millim., with a dark, narrow border; perithecia scattered, immersed, slightly projecting above; sporules elliptical, 2-nucleate, hyaline, 4—6 x 2½—3 μ.

PHYLLOSTICTA SPINOSA, E. & K.—On leaves of *Sida spinosa*. Manhattan, Kansas, June, 1887. W. T. Swingle. Spots amphigenous, round, small (1—3 millim.), white above, rusty white below, border mostly purplish-shaded; perithecia mostly in the center of the spots, punctiform, black, slightly prominent; sporules oblong, 2-nucleate, 12—14 x 4—5 μ. The spots on the lower side of the leaf are covered with tufts of brown,

sterile hyphæ, about 40 x 3 μ and mostly curved. *Phyllosticta destructiva*, Desm., is said to grow on various plants and among them are *Malva* and *Althæa*, but the specimen of *P. destructiva* in Thumen's Mycotheca, 1,299, on *Althæa rosea* has sporules only about 5 x 2 μ, and of the five numbers in Fungi Gallici labeled *P. destructiva*, only one affords any spores, viz.: 2,038, on *Malva silvestris*, having sporules 10—11 x 3½—4 μ and pseudo-septate, agreeing tolerably with Saccardo's *Ascochyta althæina* (Syll. III, p. 399). The specimen of *P. destructiva* in Rabh-Winter's Fungi Eur., 3,092, is different from all the others and certainly very different from the Kansas specimens which must also be different from *P. sidæcola*, Ck., said to have sporules 4 x 2 μ.

SCOLECOTRICHUM MACULICOLA, E. & K.—On living and partly dead leaves of *Phragmites communis*. Kansas. June, 1887. W. A. Kellerman. Spots amphigenous, narrow elliptical, about 5—8 x 2 millim., dirty white, with a dark border; hyphæ hypophyllous, subundulate, continuous or with a single faint septum near the base, subfuliginous, about 40 x 4—5 μ, growing in dense, spreading, olivaceous, seriate tufts, forming a single continuous line along the middle of each spot; conidia terminal, granular, continuous (so far as yet seen), ovate, ovate-elliptical or oblong, subhyaline, 20—22 x 8—11 μ. *S. tomentosum*, Bon., is said to have septate hyphæ and nothing is said of any spots. *Hadotrichum lineare*, Pk., also resembles this, but has no spots and the hyphæ are darker, longer (45—55 μ) and straight, and the conidia mostly shorter and more distinctly ovate.

RAMULARIA OCCIDENTALIS, E. & K.—On leaves of *Rumex Britannica*. Manhattan, Kas., July, 1887. W. T. Swingle. Amphigenous, spreading over the greater part of the leaf, but here and there forming denser patches of the minute, white, punctate tufts; hyphæ cæspitose, bacillary or slightly undulate above, entire or nearly so, 20—35 x 2½—3 μ, hyaline and continuous, bearing at their tips the more or less distinctly catenulate, hyaline conidia, which vary in size and shape from ovate or ovate-elliptical, 5—6 x 2—3 μ to narrow-cylindrical, 25—35 x 1½—2 μ, granular or nucleolate. This appears to differ from all the other species on *Rumex* in the entire absence of spots and in the shape and size of its conidia.

CERCOSPORA ASIMINÆ, E. & K.—On living leaves of *Asimina triloba*. Mound City, Ks., July, 1887. W. A. Kellerman. Spots scattered, small (1—2 millim. mostly), sterile, rather indefinite and purplish-brown above, grayish or mouse-colored below; fertile hyphæ scarcely tufted, short, brown, 12—15 x 6—7 μ, rounded above or sometimes divided into several branches; conidia subolivaceous, broad, lanceolate, 5—7-septate, 60—80 x 6—7 μ. A very curious and distinct species.

CERCOSPORA FULIGNIOSA, E. & K.—On living leaves of *Diospyros Virginiana*. Mound City, Ks., July, 1887. W. A. Kellerman. Spots amphigenous, small (1—2 millim.), purple-black; hyphæ hypophyllous, closely fasciculate-cæspitose, dark olivaceous, 100—150 x 3 μ, obscurely septate, undulated and abruptly bent and much toothed above; conidia obclavate, 3-septate, olivaceous, 35—40 x 4 μ, slightly curved. Differs from *C. Diospyri*, Thum., in its definite spots and different hyphæ and conidia.

CERCOSPORA POLYTÆNIÆ, E. & K.—On leaves of *Polytænia Nuttallii*. Manhattan, Ks., June, 1887. W. T. Swingle. Hyphæ very short, olivaceous, forming dense, sphæriæform tufts on dark (3—4 mllim.), suborbicular or subelliptical spots, with a dirty-white center; conidia hyaline, granular, becoming 3—4-septate, 70—100 x 4—5 μ.

CERCOSPORA PRENANTHIS, E. & K.—On living leaves of *Prenanthes aspera*. Manhattan, Ks., August, 1887. W. T. Swingle. Amphigenous, tufts punctiform, minute, black, scattered quite evenly over the greater part of the leaf or more densely grouped in areas formed by the veinlets of the leaf; spots none; hyphæ short 25—35 x 4 μ, continuous, subolivaceous, simple, entire; conidia obclavate-cylindrical, nucleate and granular, nearly hyaline, 50—60 x 5—6 μ.

CERCOSPORA PACHYPUS, E. & K.—On *Helianthus lenticularis*. Manhattan, Ks., Aug., 1887. Swingle. Amphigenous, overspreading the greater part of both surfaces of the leaf, which is soon mottled with indefinite, yellowish spots above. On these spots, which finally become dirty brown, the fungus makes a denser growth, but it is not confined to the spots; hyphæ short, 20—30 x 6—8 μ or, when young, swollen at base (8—10 μ thick), torulose and dentate above, olive brown, continuous; conidia oblong or subcylindrical, obtuse at both ends, 1-septate, olivaceous, 25—70 x 5—7 μ, the longer ones narrower above. The tufts of hyphæ are small (about 35 μ across), with mostly 12—15 in a tuft. This is very different from *C. Helianthi*, E. & E., Journ. Mycol., III, p. 20, as will be seen by referring to the description of that species. The single septum in the conidia of the present species seems to be characteristic and not due to immaturity.

PERONOSPORA SWINGLEI, E. & K.—On leaves of *Salvia lanceolata*. Manhattan, Ks., June, 1887. W. T. Swingle. Forming cinereous patches of greater or less extent on the lower surface of the leaves, which are marked with rusty spots and blotches above; fertile hyphæ dichotomously branched above, the ultimate divisions short and spine-like; conidia elliptical, dull violet, 20—22 x 16—18 μ.

GLŒOSPORIUM MEDICAGINIS, E. & K.—On leaves, petioles and stipules of *Alfalfa*, *Medicago sativa*. (cult.) Manhattan, Ks., May, 1887. The affected leaves, which are principally the lower ones, turn yellowish and become dead and dry; acervuli scattered on these withered leaves, innate, blackish, rather large, visible on both sides but more prominent and opening below; spores oblong, cylindrical, granular, subhyaline, mostly distinctly narrowed in the middle, 15—20 x 3—4 μ. *G. trifolii*, Pk., is said to be on concentrically zoned spots and to have the spores 15—23 x 4—6.3 μ.

CYLINDROSPORIUM ERYNGII, E. & K.—On living leaves of *Eryngium yuccæfolium*. Mound City, Ks., July, 1887. W. A. Kellerman. Acervuli minute, innate, seriate, ejecting the cylindrical, slightly curved, multinucleate, becoming multiseptate, 70—80 x 3—4 μ, conidia on both sides of the leaf, forming conspicuous, white striæ, ½—1 cm. long; fertile hyphæ short and rudimentary. The leaf is slightly blackened, forming narrow (one millim.), brown, spots ½—1 cm. long. This resembles closely *Cylindrosporium veratrinum*, Sacc. & Winter.

CYLINDROSPORIUM MINOR, E. & K.—On living leaves of *Fraxinus viridis*. Manhattan, Ks. Kellerman, 839. Spots subangular, 3—4 millim. in diameter, red-brown, with the central part lighter; ascervuli innate, rather large, raising the epidermis on both sides of the leaf in a pustuliform manner, but mostly opening above and finally black, so as to resemble perithecia, but there is really no distinct perithecium; conidia narrow-cylindrical, curved, nucleate, hyaline. 35—40 x 2 μ, much resembling those of *C. Fraxini*, E. & K., only much smaller. This is different from *Septoria Orni*, Pass. (Thum., M. U., 395), which also approaches *Cylindrosporium*.

PHLEOSPORA ANEMONES, E. & K.—On living leaves of *Anemone*. Kansas. Swingle, 843. Perithecia hypophyllous, black, membranaceous, prominent, subglobose or hemispheric, then flattened, thickly scattered over the surface of the leaf, which assumes a dirty brownish look both above and below, but without any definite spots; sporules fusiform, curved, nucleate and, for the most part, with endochrome finally three times divided, 30—40 x 2½—3 μ, hyaline. This does not seem to be *Septoria silvicola*, Desm., but we have no specimens of that species for comparison.

SPHÆRELLA CRUS-GALLI, E. & K.—On withered leaves of *Panicum crus-galli*. Manhattan, Ks., 1887. Swingle. Perithecia buried in the substance of the leaf and visible on both sides, but more prominent above, evenly scattered or in small groups, with scattering perithecia intermediate, globose, 100—115 μ in diameter, with a broad, round opening above; asci oblong, 50—55 x 10—12 μ, without paraphyses; sporidia crowded, oblong-fusoid, subinequilateral, 1-septate and mostly constricted at the septum, hyaline, 14—16 x 4 μ. This is quite different from *Sphærella Panicum*, Cke., which is on purplish spots and has 3-septate sporidia. *S. Maydis*, Pass., is also different, having rather larger perithecia more distinctly grouped and (see specc., in Rab-Winter's Fungi, No. 1,851) has sporidia fusoid, 16—20 μ long. This is also different from *S. Muhlenbergiæ*, Ell., which, by the way, is a good species and quite distinct from either *S. graminicola*, Fckl., which has larger asci and sporidia or *S. pusilla*, Awd. *S. graminicola*, Fckl., see specc., in Rehms. Ascom., 794, and F. Eur., 3,446, has asci 75 x 12 μ and sporidia 15—20 3½—4½ μ.

OBITUARY—DR. GEORG WINTER.

It is with the deepest regret that we announce the death, after long and severe sickness, of our most valued friend, Dr. Winter, which took place the 16th of August, at Connewitz, near Leipsig. Although of world-wide mycological fame, he had scarcely more than reached the prime of life: he was not yet quite forty years of age at the time of his death. His loss will be felt by every student of fungi. We think at once of his important though unfinished work, the "Pilze" of Germany, the Exsiccata, so carefully edited and indispensable to all, the numerous monographs and critical studies recently published or promised soon, and in vain look for others as able to carry on what was so well begun. A brief outline of his life and work was given in this JOURNAL last January and to this (p. 8) the reader is referred, where also a list of his mycological publications is given.

OBITUARY—H. W. RAVENEL.

FROM THE "RECORDER," AIKEN, S. C., JULY 10, 1887.

Henry William Ravenel was born in the parish of St. Johns, Berkeley, S. C., May 19, 1814, and died at Aiken, after a protracted illness, on Sunday, July 17, 1887. After receiving the usual high school training, he entered the South Carolina College and graduated with distinction in 1832, in the class with Jas. R. Aiken, W. M. Armstrong, C. Richard Furnham Baker, John Lesesne, John H. Means and others. Soon after graduation, he engaged in planting in St. Johns, Berkeley, and continued it for twenty years. Early in life, he began his botanical researches, and his natural fondness for these pursuits was increased by an infirmity of hearing, which cut him off from most of the ordinary occupations of life.

In the course of his career, he has steadily added to his herbarium, and has left in the possession of his family probably the most complete collection of both *Phenogamous* and *Cryptogamous* plants to be found on either side of the Atlantic.

He prepared several volumes of fungi, called "Fungi Caroliniani Exsiccati," which were published in this country and attracted marked attention. He also acted as American botanist in connection with his friend, Prof. Cook, of London, Eng., in preparing several other volumes of fungi. These last were published in England in editions of only one hundred copies each.

In 1869 he went as botanist with Prof. Gamgee, by appointment of the United States government, to investigate the cause of the cattle disease then prevailing in Texas. It was thought that the disease was due to a fungoid growth on certain plants which were eaten by the cattle, and as Dr. Ravenel was known to have made exhaustive researches on the subject of fungi, he was selected for the work. A learned and elaborate report was published from the data obtained on this expedition and it was acertained that the disease was not due to the presence of fungi.

In 1849 he was elected correspondent of the Academy of Natural Sciences, of Philadelphia, Pa. In 1853 he was elected member of the Zoologisch-Botanische Geselschaft, of Vienna, Austria, and in 1886 the degree of LL. D. was conferred on him by the University of North Carolina. Such were the literary and scientific distinctions that rewarded the labors of this modest gentleman and diligent student. Had it not been for his deafness, he would never have been suffered to remain in Aiken, but would have long since occupied a professor's chair in some famous institution of learning. For a couple of years, he edited the agricultural department of the weekly *News and Courier* with great ability, and at the time of his death was botanist to the state department of agriculture.

Dr. Ravenel was married in 1735 to Miss Elizabeth Gilliard Snowden, of St. Johns, Berkeley, who died in 1855. By this marriage, he had six children, four of whom survive, one a son living at Darien, Ga., and all useful and honored members of society. In 1858 he married Miss

Mary Huger Dawson, of Charleston, who, with five children, all daughters, survive to mourn their irreparable loss.

Dr. Ravenel moved to Aiken in 1853, consequently he has been a resident for thirty-four years. For many years he was a vestryman of Trinity church, Black Oak, in St. Johns, Berkeley, and for the last thirty-three years has been a vestryman of St. Thaddeus church, Aiken, a considerable portion of the time as senior warden.

The war swept away nearly all of his property, but he met his adversity with Christian fortitude and courage, doing his duty faithfully unto the end.

NEW LITERATURE.

BY W. A. KELLERMAN.

"VEGETABLE PARASITES AND EVOLUTION." Address by Wm. G. Farlow, M. D., before the section of biology, A. A. A. S., 1887. From Proc. Am. As. Adv. Sci., Vol. XXXVI.

"A LIST OF WORKS ON THE NORTH AMERICAN FUNGI." By W. G. Farlow and William Trelease, Cambridge, Mass. Issued by the Library of Harvard University.

The list is complete, with the exception of *Schizomycetes*, up to 1887, of those "works of greater or less value to working botanists," excluding those of a popular and indefinite character.

"DISEASE OF TOMATOES: DACTYLIUM ROSEUM (BERK.) VAR." By Worthington G. Smith. Gardener's Chronicle, Aug. 6, 1887.

This fungus, usually considered to be *saprophytic*, was found to be a true parasite, living upon the growing tomato plants. Illustrations accompany the article. The fungus is considered to be but an aberrant form of *D. roseum*, though the author says it would likely be considered a new species by some observers, on account of its somewhat different form and especially its parasitic habit.

"REVISION OF SCOTCH SPHÆROPSIDEÆ AND MELANCONIEÆ." By Prof. J. W. H. Trail. The Scottish Naturalist, July, 1887.

"KRYPTOGAMEN-FLORA." Pilze, von Dr. G. Winter. 28th Lieferung, pp. 1-64. Hysteriaceæ, Discomycetes (Pezizaceæ) bearbeitet von Dr. H. Rehm. Leipsic, 1887.

"ASCOMYCETES OBSERVES AUX ENVIRONS DE LIEGE PAR V. MONTEN, II." Bulletin Soc. Roy. Bot. de Belguique Tome. vingt-sexieme. Premier fascicule, 1887.

"CONTRIBUTIONS A LA FLORE MYCOLOGUIQUE," par Mmes. E. Bommer et M. Rousseau. l. c.

"BEITRÆGE ZUR FLORA DER ROST. U. BRAND-PILZE THUERINGIENS." Von G. Oertel. Fortsetzung. Deutsche botanische Monatsschrift, Juni, 1887.

"OBSERVATIONES ANALYTICÆ IN FUNGOS AGARICINOS." Auctore Doct. P. Voglino.

"THE IDENTITY OF PODOSPHÆRA MINOR, HOWE, AND MICROSPHÆRA FULVOFULCRA, CKE." (with plate). Martha Merry. Botanical Gazette, August, 1887.

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